

APPENDIX 8.2B

## **Resumes of Field Surveyors**

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# **Debra J Crowe**

## **Environmental Scientist/Wildlife and Wetlands Biologist**

### **Education**

B.S., Environmental Biology and Management (Honors), University of California—Davis (1994)  
Veterinary Technician Certification Program, Western Career College, Sacramento, California (1979)

### **Professional Registrations**

Endangered Species Act (ESA) Section 10 Scientific Take Permit for California Threatened and Endangered Fairy Shrimp and Tadpole Shrimp (Permit #TE004824-0)  
California Department of Fish and Game Scientific Collector's Permit  
Certified Veterinary Technician

### **Distinguishing Qualifications**

- Experienced in California Energy Commission power plant licensing procedures
- Expert witness for biological resource evaluations on power plant projects
- Experienced in Section 7 of ESA consultations and mitigation plans
- Expertise in biological resource construction mitigation monitoring
- Routinely consults with natural resource agencies on project permitting, mitigation measures, and construction monitoring

### **Relevant Experience**

Ms. Crowe is a wildlife and wetlands biologist who analyzes potential project impacts on biological resources, including wetlands and threatened or endangered species and Species of Concern. She has been an expert witness in several power plant licensing projects under the California Energy Commission regulations and prepared biological resource analyses, mitigation, monitoring, and resources management plans, and monitored construction and operations for compliance with Conditions of Certification as the Designated Biologist. She conducts wetland delineations, biological resource surveys, timber stand exams, and wetland creation/preservation monitoring.

She has 10 years of field experience in surveys and identification of wildlife and plants, wetland delineations, field sampling, vernal pool crustacean surveys, and threatened and endangered wildlife surveys in California, Alaska, Washington, Oregon, and Nevada. Ms. Crowe is experienced in Section 7 of the ESA consultations, Biological Assessments, and mitigation negotiations, as well as in fresh and salt marsh wetland delineations using U.S. Army Corps of Engineers methods and obtaining CWA Section 404 and 401 permits, Coastal Consistency Determinations, CDFG Consultations and Streambed Alteration Agreements. Her expertise includes NEPA and CEQA regulations, procedures, and documentation production. She is certified in identification of California fairy shrimp and tadpole shrimp to species and have a

current ESA Section 10 permit. Ms. Crowe is familiar with California floristics, Atlas GIS, habitat modeling, environmental law, and report preparation and is certified in Hazardous Waste Operations and Emergency Response. Ms. Crowe also conducts soil and water sampling on hazardous waste sites and conducts groundwater and surface water sampling programs.

She has 15 years experience in handling injured and diseased animals as a licensed Veterinary Technician and is a member of the Sacramento Wildlife Care Association.

#### ***Biological Assessments/Wildlife Surveys***

**Application for Certification (AFC) of Metcalf Energy Center, Calpine Corporation, San Jose, California.** Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, recycled water supply line, natural gas pipeline route, and electric transmission line connection. Prepared the biological resources section of the AFC and initiated consultations for sensitive biological resources with U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. National Marine Fisheries Service, California Regional Water Quality Control Board, California Department of Fish and Game, City of San Jose, Santa Clara Valley Water District, and California Energy Commission. Consulted with local experts and USFWS on potential impacts to serpentine habitat on Tulare Hill and with Santa Clara Valley Water District on potential impacts within the Fisher Creek Riparian Corridor. Prepared Management Plan for the MEC Ecological Preserve and Fisher Creek Riparian Corridor Enhancement Plan. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project. Currently monitoring construction of the MEC plant and linears.

**Environmental Impact Report/Environmental Impact Statement for Teayawa Energy Center, Calpine Corporation, Indio, California.** Task Manager for threatened or endangered species consultations with U.S. Fish and Wildlife Service and California Department of Fish and Game. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, recycled water supply line, natural gas pipeline route, and electric transmission line connection. Consulted with local experts and USFWS/CDFG on potential impacts to desert species and habitat in the Coachella Valley. Prepared the Biological Assessment and mitigation plan and initiated consultations for sensitive biological resources.

**Application for Certification (AFC) of Sutter Power Plant, Calpine Corporation, Yuba City, California.** Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, natural gas pipeline route, and electric transmission line route. Conducted wet season and dry season surveys for listed vernal pool branchiopod species. Conducted wetland delineation, prepared wetland delineation report, biological assessment, and mitigation plans for U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, California Department of Fish and Game, and California Energy Commission. Consulted with above-mentioned agencies and the California Regional Water Quality Control Board for Clean Water Act Section 404 permit and Section 401 water quality certification to fill seasonal wetlands and construct gas pipeline through Sutter National Wildlife Refuge. Conducted stream geometry surveys and water

quality analysis for irrigation canals, Sutter Bypass, and Sacramento River. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project.

**Application for Certification (AFC) of Delta Energy Center, Calpine Corporation, Pittsburg, California.** Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, natural gas pipeline route, and electric transmission line route. Conducted wet season and dry season surveys for listed vernal pool branchiopod species. Currently preparing wetland delineation report, biological assessment, and mitigation plans for U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. National Marine Fisheries Service, California Department of Fish and Game, and California Energy Commission. Consulted with above-mentioned agencies and the California Regional Water Quality Control Board for Clean Water Act Section 404 permit, Section 10 Rivers and Harbors Act, and Section 401 water quality certification to construct in areas of coastal wetlands with special-status species such as California clapper rail, salt-marsh harvest mouse, species occurring within the Antioch Dunes National Wildlife Refuge. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project.

**Application for Small Power Plant Exemption for Carson Ice-Cogeneration Facility, Sacramento Regional Wastewater Treatment Plant, Carson Energy Group, Elk Grove, California.** Assisted in the preparation of a Biological Resources Management Plan for the burrowing owl and threatened or endangered species at the project site. Served as assistant project manager for biological resource construction mitigation monitoring in vicinity of project site. Conducted surveys for threatened and endangered species, Species of Special Concern, and wetlands and other wildlife habitats. Researched alternative structures for burrowing owl burrows. Assisted in the development of a Biological Resources Sensitivity Awareness Training Program and brochure for site managers. The training class covered species identification (giant garter snake, Swainson's hawk, burrowing owl), habitat management, and the nature of, and compliance with, existing state and federal environmental laws. Assisted in teaching the sensitivity program. Prepared the 1994 Burrowing Owl Monitoring Report for submission to the California Energy Commission. Attended agency meetings and consulted with client on agency matters.

**Application for Certification (AFC) of Sacramento Ethanol and Power Cogeneration (SEPCO) Project, Ark Energy Group, Rio Linda, California.** Performed threatened and endangered species surveys (giant garter snake, fairy shrimp, Swainson's hawk, burrowing owls), literature search, and wildlife impact evaluation for proposed ethanol production plant and water pipeline route. Assisted in vernal pool crustacean surveys on project site. Conducted wetland and raptor surveys for evaluation of impacts along proposed water pipeline route.

**Threatened and Endangered Species Surveys for Seismic Upgrade of Mokelumne Aqueduct No.3, East Bay Municipal Utility District, San Joaquin County, California.** Conducted surveys for special-status species along the aqueduct pipelines. Prepared a technical biological assessment for consultations with the California Department of Fish and Game, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers. Developed mitigation measures to protect

delta smelt, chinook salmon, Central Valley steelhead, Sacramento splittail, and nesting Swainson's hawks and burrowing owls along the aqueduct during construction.

**Wildlife Surveys for Piñon Pine Power Project; Sierra Pacific Power Company, Nevada.**

Assisted in research of threatened and endangered species present in project vicinity. Conducted threatened and endangered wildlife surveys. Conducted small mammal trapping and identification for habitat evaluation.

**Threatened and Endangered Species Surveys for New Electric Transmission Line Corridors; Sacramento Municipal Utility District, Sacramento County, California.** Assisted in threatened and endangered species surveys of new utility corridors in Sacramento County. Located occurrences of state protected species including Swainson's hawks, burrowing owls and vernal pool crustaceans.

**Threatened and Endangered Species Wildlife Surveys for Proctor and Gamble Cogeneration Project; Sacramento Municipal Utility District, Sacramento, California.** Performed threatened and endangered species wildlife surveys for burrowing owls, raptors, and vernal pool crustaceans along the proposed fiber optic lines route from the Proctor and Gamble cogeneration plant site. Identified wetlands and sensitive species habitat.

**Biological Assessment and Vernal Pool Crustacean Surveys for B.T. Collins Army Reserve Training Center, U.S. Army Reserve Command, Sacramento, California.** Conducted threatened and endangered species surveys and prepared a biological assessment for the project area. Responsible for organization and conducting vernal pool crustacean surveys and identifications under a Section 10 Scientific Take Permit (#796012) and U.S. Fish and Wildlife Service Vernal Pool Crustacean Survey Guidelines. Collected voucher specimens and identified them to species. Responsible for submission of annual report to U.S. Fish and Wildlife Service and voucher specimens to California Academy of Sciences. Consulted with U.S. Fish and Wildlife Service to develop and implement a mitigation plan for seasonal wetlands, vernal pool fairy shrimp, and burrowing owls. Conducted burrowing owl mitigation monitoring and reports.

**Low-Effect Habitat Conservation Plan for Tulare Irrigation District Main Intake Canal Lining Project, Visalia, California.** Performed San Joaquin kit fox surveys using camera stations and walking transects under the USFWS survey protocols. Prepared technical memorandum for submittal to USFWS. Assisted in preparation of Low-effect habitat conservation plan for Valley elderberry longhorn beetle in project area.

**Biota Collection for Kesterson Reservoir, Bureau of Land Management, Gustine, California.** Collected blood samples from American kestrels and loggerhead shrike for selenium evaluation. Collected aquatic insects for selenium analysis from ponding areas. Conducted avian surveys and telemetry field work on kestrels at the site.

**Forest Stand Exams; USDA Forest Service, Deschutes National Forest; Oregon.** Served as field co-manager for conducting intensive forest stand exams on 55,000 acres of the Deschutes National Forest. Responsible for data management and quality control of more than 12,000 individual sample points, including forest measurements, forest disease evaluation, habitat evaluation, and sensitive plant and wildlife surveys. Coordinated the organization of 20 crew members (including subcontractors) for field data collection and onsite daily planning.

Coordinated biweekly with the U.S. Forest Service for submittal and quality control of all computerized data and data sheets.

**Environmental Impact Statement/Report for Headwaters Forest Agreement, Pacific Lumber Company, Humboldt County, California.** Analyzed and categorized more than 10,000 pre-EIS/EIR scoping comments for Headwater Agreement between Pacific Lumber Company, U. S. Fish and Wildlife Service, and California Department of Fish and Game. Assisted in development of a scoping report to address community concerns that would be included in the Environmental Impact Statement.

**Evaluation of Second-Growth Forest Treatments for Wildlife; USDA Forest Service, Clearwater Valley in Gifford Pinchot National Forest, Washington.** Associate scientist for conducting research to determine the effects of various silviculture modification of second-growth forest on wildlife. Field work included; data collection for tree growth parameters, setting up research grids, and conducting wildlife observations.

**Environmental Impact Statement and Biological Assessment for Sacramento Army Depot Disposal and Reuse, Sacramento, California.** Conducted surveys for threatened and endangered species and Species of Special Concern (including burrowing owls, fairy shrimp, and tadpole shrimp). Prepared the Biological Assessment for vernal pool fairy shrimp on the Sacramento Army Depot for the U.S. Fish and Wildlife Service. Consulted with U.S. Fish and Wildlife Service and developed vernal pool fairy shrimp mitigation measures for closure and reuse of the Depot. Prepared a wetland delineation report for vernal pools in Open Space areas. Conducted an extensive vernal pool fairy shrimp and tadpole shrimp literature search.

**Biological Assessment for Oakland Army Base, Oakland California.** Conducted threatened and endangered plant and animal species surveys on the project site including submerged land within the San Francisco Bay. Consulted with U.S. Army Corps of Engineers, U.S. National Marine Fisheries Service, and U. S. Fish and Wildlife Service for potential project impacts. Prepared sections of the Environmental Assessment and Environmental Impact Statement for the project.

**Environmental Baseline Survey for McClellan Air Force Base, Sacramento, California.** Conducted Phase I, II and III Visual Site Inspections of buildings and open land areas for evidence of hazardous material releases and potential pathways for contamination. These surveys were used to determine DOD categorization of land parcels and possible privatization reuse opportunities under the Base Realignment and Closure process. Conducted wildlife and sensitive habitat surveys on all property sites. Assisted in production of Basewide and Site-specific Environmental Baseline Survey documents.

**Environmental Baseline Survey for Oakland Army Base, Oakland California.** Conducted Visual Site Inspections of buildings and land areas evidence of hazardous material releases and potential pathways for contamination. These surveys were used to determine DoD categorization and possible reuse under the Base Realignment and Closure process. Conducted wildlife surveys in open areas. Consulted with California Department of Fish and Game and the U.S. Army Corps of Engineers on special status species and wetlands. Assisted in Basewide Environmental Baseline Survey document preparation.

**Habitat Evaluation Procedures (HEP) Study and Sensitive Species Surveys for Ramsey-French Meadow Hydroelectric Project, Northern California Power Agency, Upper Stanislaus**

**River, California.** Assisted in timber map and aerial photograph evaluation, habitat typing, planimetering, field surveys, and ground-truthing of delineated habitat polygons, along with data compilation. Assisted in spotted owl and northern goshawk surveys and data compilation. Mapped mule deer migration routes, and summer, winter, and fawning habitats along proposed transmission line. Mapped sensitive wildlife species sightings along proposed transmission line.

**Ecological Risk Assessment for Jet Propulsion Laboratory, Pasadena, California.** Responsible for biological resource inventory on Jet Propulsion Laboratory and neighboring Arroyo Seco. Conducted threatened and endangered species surveys. Evaluated habitat types and the potential for sensitive receptor species to occupy the site.

**Environmental Impact Statement for Swan Lake-Lake Tyee Intertie Project, Ketchikan Pulp Company, Ketchikan, Alaska.** Responsible for identification of wetlands, floodplains, riparian habitat, threatened and endangered species locations, potential mass movement areas, and stream classifications along proposed transmission line route. Also responsible for data analysis and preparation of EIS sections.

**Control Lake Environmental Impact Statement for U.S. Forest Service, Klawok, Alaska.** Assisted in laying out timber sale plots on Prince of Wales Island. Responsible for locating and plotting class I, II, and III streams using compass, aerials, and topo maps. Recorded wildlife species, plant species, and habitat types on Prince of Wales Island. Assisted in bald eagle, northern goshawk, marbled murrelet, and other wildlife surveys with assistance of a helicopter. Comfortable with helicopter flight.

**Subcontractor for Threatened and Endangered Fairy Shrimp and Tadpole Shrimp Species, Simpson Environmental, San Joaquin, Calaveras, Tuolumne, and Solano counties, California.** Project manager and field technician for vernal pool crustacean surveys on project sites requiring agency consultation. Responsible for organization and conducting vernal pool crustacean surveys under a Section 10 Scientific Take Permit and US Fish and Wildlife Service Vernal Pool Crustacean Survey Guidelines.

**Water Quality Monitoring of Morrison Creek; Sacramento Municipal Utility District.** Performed water quality analysis for monitoring along Morrison Creek at various sites below the Proctor and Gamble cogeneration plant. Conducted monitoring from the area immediately below the site to 10 miles downstream.

**Mono Lake Basin/Upper Owens River Investigation; California Department of Fish and Game.** Assisted in planimetering and evaluating for eastern Sierra Nevada stream channel gains and losses. Compiled data and assisted in report preparation. Photographed stream flow for streams entering Mono Lake.

**Fish Population Monitoring for Oroville-Wyandotte Irrigation District, California.** Responsible for preparation of field equipment and crew for electrofishing in several streams. Used electrofishing field methods to collect, measure, and weigh fish. Recorded data and composed graphics for documentation.

#### ***Wetland Delineations***

**Wetland Delineation for Hazardous Waste Remediation, U.S. Navy, Naval Weapons Station--Seal Beach, Seal Beach, California.** Conducted wetland delineation and prepared wetland

delineation report. Consulted with U.S. Army Corps of Engineers, and U. S. Fish and Wildlife Service to determine impacts of remedial action on threatened and endangered species and southern California coastal salt marsh habitat. Consulted with California Coastal Commission on Coastal Consistency Determination.

**Wetland Delineation and Section 404 Permit for B.T. Collins Army Reserve Training Center, U.S. Army Reserve Command, Sacramento, California.** Responsible for delineation of seasonal wetlands on the Reserve Center. Consulted with U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game, California Regional Water Quality Control Board for mitigation measures and Nationwide Permit 26 to fill seasonal wetlands. Process included preparation of California Environmental Quality Act Initial Study, Section 404 Predischarge Notification package, Section 401 Water Quality Certification application, Streambed Alteration Agreement (FG 1601), Biological Assessment, and mitigation plan assumed in the resulting Biological Opinion.

**Wetland Creation Mitigation Monitoring Project, Ferndale, Washington, Texaco Oil Company.** Conducted first year wetland flora and fauna monitoring, including identification of plant species and survival statistics of each.

**Wetland Creation Mitigation Monitoring Project, Anacortes, Washington, Texaco Oil Company.** Conducted first year wetland flora and fauna monitoring, including identification of plant species and survival statistics of each.

**Wetland Creation Mitigation Monitoring Project, Northwest Pipeline, Bellingham, Washington.** Conducted second year wetland flora and fauna monitoring, including identification of plant species and survival statistics of each.

#### ***Hazardous/Solid Waste***

**Revegetation Plan for Casmalia Pesticide/Solvent Landfill Cap, Casmalia Hazardous Waste Resource Facility Casmalia, California.** Prepared a revegetation plan for a constructed landfill cap using California native coastal sage scrub and annual grassland species. The objectives of the plan were to use native species from the region with shallow root systems that would not jeopardize the integrity of the cap, reduce erosion, and enhance wildlife habitat. Prepared plan for U.S. EPA approval. Coordinated seed and plant distributors.

**Confirmatory Sampling for Decontamination and Cleanup of Sacramento Army Depot for the U.S. Army Corps of Engineers, Sacramento, California.** Sampling coordinator for wastewater, soil, dust, and wipe sampling of hazardous materials at several locations on site. Coordinated labs and sampling crew, reviewed sampling plans, analyzed data, prepared all chain-of-custody documentation, wrote parts of final Environmental Baseline Survey report. Assisted in preparation and review of Work Plan, Field Sampling and Analysis Plan, Health and Safety Plan, and Quality Assurance Project Plan.

#### **Professional Societies**

California Native Plant Society  
Society of Ecological Restoration  
California Inland Invertebrate Working Group  
California Burrowing Owl Consortium  
Sacramento Audubon Society



Sacramento Wildlife Care Association  
The Wildlife Society

**Training**

Pre-certification Wetlands Delineation Training

Health and Safety Officer Training

Environmental Site Assessment (Phase I and Phase II Site Assessments) Training

40-Hour Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)

OSHA Supervisor Training [29 CFR 1910.120(e)(4)]

OSHA Refresher Training [29 CFR 1910.120(e)(8)]

DOT/HM-126F Hazmat Training (49 CFR 172, Subpart H)

# **John Cleckler**

## **Wildlife Biologist**

### **Education**

B.S., Wildlife and Fisheries Biology, University of California at Davis, 1990

John is a staff biologist in CH2MHILL's Sacramento Office. He has over 11 years of experience as a wildlife biologist. His experience includes performing general and special-status wildlife surveys using standard census techniques. His expertise include invertebrate and vertebrate natural history, vertebrate and invertebrate collecting methods, and identifying herpetile, bird, and mammalian species. He is familiar with state and federal regulations pertaining to both wildlife and wetlands. He prepares biological assessments and develops mitigation plans for Section 7 and 10(a) compliance under the Endangered Species Act.

### **Representative Projects**

**Project Biologist, Metcalf Energy Center, Santa Clara County.** Assisted in preparation of the Biological Resource Mitigation Implementation and Monitoring Plan, Resource Management Plan for the MEC Ecological Preserve, Fisher Creek Riparian Corridor Enhancement Plan, and Horizontal Directional Drilling Inadvertent Returns Contingency Plan. Managed monitoring efforts, document review, and prepared the environmental training program associated with the Metcalf Energy Center.

**Team Leader, Teayawa Energy Center Desert Tortoise Surveys, Riverside County.** Performed protocol desert tortoise surveys along proposed utility lines associated with the Teayawa Energy Center project. Assisted with preparation and review of the Biological Resources section of the EIS/EIR.

**Willow Flycatcher Survey, Federal Highways.** Performed protocol willow flycatcher surveys within suitable riparian habitat adjacent to the proposed Blue Lakes Road improvement project.

**Northern Spotted Owl Survey, Federal Highways.** Performed protocol northern spotted owl surveys within suitable habitat adjacent to the proposed Hyampom Road improvement project.

**Environmental Quality Assurance Program Environmental Monitor, San Luis Obispo County.** Provided environmental monitoring for the Arco Quadalupe Dunes clean up and restoration project. Also provided consultation with project proponents regarding county permit limitation and requirements.

**Environmental Quality Assurance Program Onsite Environmental Coordinator, Santa Barbara County.** Managed a crew of environmental monitors on a fiber optics installation project throughout the County of Santa Barbara. Also provided consultation with project proponents regarding the County permit limitation and requirements.

**Desert Tortoise Monitoring, Mission Geoscience.** Performed desert tortoise monitoring for exploratory drilling project near Barstow, California. Included presentation of an environmental awareness training program.

**Sensitive Species Surveys, Coachella Valley Association of Governments.** Performed focused surveys for a highway interchange expansion project. Focused surveys were conducted for Coachella Valley fringed-toed lizard, Coachella Valley Jerusalem cricket, Coachella Valley giant sand treader cricket, and Coachella Valley grasshopper.

**Fish Creek Restoration Project, Vulcan Materials/CalMat Division.** Performed a biological reconnaissance survey to determine impacts associated with the proposed realignment and restoration of Fish Creek.

**Communications Facility Biological Resources Assessment, AT&T.** Provided biological assessment of proposed and existing communication sites.

**Sun Valley Biological Resources Assessment and Tree Inventory, Vulcan Materials/CalMet Division.** Performed a biological reconnaissance survey to determine impacts of proposed mining expansion. Assessment included an inventory of native tree species.

**Oro Grande Sand and Gravel Mine Restoration Project, Vulcan Materials/CalMet Division.** Performed a biological reconnaissance survey to determine impacts associated with the reclamation strategy and proposed reclamation activities. Special focus was placed on determination of suitable desert tortoise habitat. Developed an environmental awareness program and a list of avoidance measures.

**Fiber Optic Communications Project Construction Monitoring-Level (3) Communications.** Managed construction monitoring of a 96.5-mile longhaul fiber optic communications line. Special focus was placed on avoidance of desert tortoise and Mohave ground squirrel habitat. Included development and implementation of an environmental awareness program.

**Montecito Ranch Biological Resources Assessment, Citation Homes.** Performed a biological reconnaissance survey to determine impacts of proposed housing development. Special focus was placed on determination of suitable California gnatcatcher habitat.

**Sawpit Dam Modification Project, County of Los Angeles Department of Public Works.** Conducted riparian nesting bird surveys downstream of the Sawpit Reservoir. Also trapped southwestern pond turtles prior to de-watering of the reservoir.

**Oak Valley Estates Biological Resources Assessment, The St. Clair Company.** Performed a biological reconnaissance survey to determine impacts of proposed housing development. Also attended public hearings in support of the biological resources determination.

**Southwestern Pond Turtle Translocation Study, County of Los Angeles Department of Public Works.** Captured and translocated southwestern pond turtles from the San Gabriel and Morris reservoir sediment removal project area. Subsequently monitored the translocation success and turtle movement using radio telemetry and GPS.

**San Gabriel Reservoir Sluicing Project, Los Angeles Department of Water and Power.** Conducted biological surveys associated with the San Gabriel and Morris reservoir sediment removal project. Surveys including mammal transects, mammal scent stations, bird surveys, and amphibian night sit surveys.

**Fiber Optic Communications Cable, Level (3) Communications.** This project included a full range of biological permitting services in support of a nationwide fiber optic network installation project. This linear project included extensive segments transecting the Mojave

Desert and the Central Coast regions. Approximately 75 percent of the buried fiber optic cable system was located within railroad right-of-ways. The remainder was located within highway right-of-ways and limited private lands. Responsibilities included environmental documentation and permitting, including wetland delineations, biological resource surveys, and agency consultation.

**San Joaquin Sanctuary Restoration Project, Irvine Water District.** Conducted breeding birds surveys with special focus on the presence of least Bell's vireo. Monitored construction activities in the vicinity of critical habitat.

**Communications Facility Biological Resources Assessment, Pacific Bell Wireless.** Provided biological assessment of proposed and existing communication sites.

**Balona Wetlands Restoration, Impact Sciences.** Collected invertebrate core samples from stream channels.

**Quarry at Wheeler Ridge Biological Mitigation Plan, Vulcan Materials/CalMet Division.** Performed a biological reconnaissance survey to determine impacts of proposed mining expansion. Special focus was placed on determination of suitable San Joaquin kit fox and blunt-nosed leopard lizard habitat. A list of appropriate mitigation measures was compiled.

**Desert Tortoise Survey and Construction Monitoring, Earth Tech, Corrections Corporation of America.** Monitored California City Prison construction activity in desert tortoise habitat. Performed a tortoise clearance survey of a 67.5-acre enclosure. Processed and relocated tortoises. Surveys were conducted under a U.S. Fish and Wildlife Services (USFWS). Prepared and delivered a worker education program.

**Desert Tortoise Mark/Recapture Survey, National Training Center.** Conducted a mark/recapture survey for desert tortoises on two 1-square mile plots at the National Training Center, Fort Irwin. Surveys are being conducted under USFWS Regional Blanket Permit and subpermit.

**Bird/Wind Turbine Collision Study - California Energy Commission.** Participated in a three-year California Energy Commission wind farm impact study near Tehachapi and Palm Springs, California. Conducted standard point count surveys and scavenger studies in order to determine the correlation between bird activity and bird mortality in and around wind farm developments. Also included coordination of the Palm Springs field station, field staff, data entry, and report writing.

**Hawksbill Turtle Study, Queensland Department of Environmental Heritage, Australia.** Assisted Ph.D. student with an intensive hawksbill turtle nesting biology study within the Great Barrier Reef.

**Black-Naped Tern Monitoring, Queensland Department of Environmental Heritage, Australia.** Monitored black-naped tern nests as part of an island ecology study in the Great Barrier Reef. Nest success and behavior was observed and recorded on a daily basis throughout the nesting season. These data were collected in conjunction with an ongoing sea turtle project funded by the Queensland Department of Environmental Heritage.

**Burrowing Species of Special Concern Survey, Los Vaqueros Reservoir Project.** Conducted surveys for burrowing species of special concern, including San Joaquin kit fox, burrowing owl,

and American badger, for the Los Vaqueros Reservoir construction project near Livermore, California. Also constructed drift fences for California tiger salamander.

**Vegetation Surveys/California State University Domingos Hills Foundation, National Training Center.** Conducted vegetation surveys for a disturbance comparison study at the National Training Center, at Fort Irwin near Barstow, California. Used line transects, frequency frames, and biomass analysis methods.

**Desert Tortoise Survey/Bureau of Land Management.** Conducted desert tortoise population density surveys for the purpose of testing the one-km<sup>2</sup> and one-hectare survey methods against the standard 60-day design. Measured, weighed, marked, and assessed health of tortoises.

**Biological Survey, Weyerhaeuser.** Surveyed old growth habitat for marbled murrelets and northern spotted owl on Weyerhaeuser tree farm property near Coos Bay and Roseville, Oregon. Surveys were conducted using standardized protocols. Identified occupied stands for murrelet. Performed night sits for spotted owls. Assisted with the daytime follow up search to locate nestlings. Participated in the capture and banding of nestling spotted owls.

**Mohave Ground Squirrel Survey, California Energy Commission.** Trapped, handled, and installed pit tags on Mohave ground squirrels near China Lake, California.

**Biological Resource Studies, Colorado State University, National Training Center.** Monitored biological resources as part of the Army National Training Center's Land Condition and Trend Analysis Study at Fort Irwin near Barstow, California.

**Desert Tortoise Survey, Los Angeles Department of Water and Power.** Surveyed for, measured, weighed, marked, and relocated desert tortoises for a Los Angeles Department of Water and Power transmission line construction project. Constructed tortoise burrows and relocated eggs. Monitored construction activities and maintained client relations. Compiled a variety of daily reports. Surveys were conducted in accordance with Biological Opinion #1-6-90-F46.

**Biological Survey, Oregon Department of Fish and Wildlife.** Surveyed proposed state timber sales for marbled murrelets in northwestern Oregon.

**Guanaco Natural History Study, Iowa State University.** Assisted Ph.D. student with ongoing study of guanacos (a camelid species) in Torres Del Paine National Park, Chile. Collected data for behavioral, radio telemetry, and mortality studies. Captured and tagged newborn and adult male guanacos.

**Salmon Habitat Survey, California Department of Fish and Game.** Surveyed salmon habitat in northwestern California using the General Aquatic Wildlife System. Recorded dimensional measurements, substrate channel types, riparian cover, and other stream features. Conducted electroshock fish sampling.

**Desert Tortoise Survey, Kern River Gas Company.** Surveyed for, handled, marked, and relocated desert tortoises for a pipeline construction project. Monitored construction activities and maintained client relations. Coordinated biology crews and completed a variety of daily reports. Surveys were conducted in accordance with Biological Opinion #1-1-89-F36R.

**Fisheries Surveys, Los Padres Nation Forest.** Conducted stream habitat typing along with electroshock fish sampling.

**Ozone Damage Assessment, Sequoia and Kings Canyon National Parks.** Assisted air quality specialist with assessment of ozone damage to pine species by way of chlorotic mottle indices.

**Peregrine Falcon Monitoring Survey, The Peregrine Fund.** Monitored the hacking procedure release of three juvenile peregrine falcons in Great Basin National Park, Nevada. Conducted behavioral observations, predator defense, radio telemetry, and data recording. Compiled written report following release.

**Bear Management, Sequoia and Kings Canyon National Parks.** Assisted park biologists with black bear management program. Included educational presentations, incident reporting, and bear capture.

## **Affiliations**

The Wildlife Society

Desert Tortoise Council

California Native Plant Society

The Nature Conservancy

## **Workshops, Seminars, and Professional Training**

California Red-Legged Frog Workshop-The Wildlife Society, 2002

Identification and Ecology of Sensitive Amphibians and Reptiles of the Central and Southern Sierra Nevada Workshop-The Wildlife Society, 2001

Surveying, Monitoring, and Handling Techniques Workshop – Desert Tortoise Council, 1992, 1993, 1999, and 2000

Basic Wetland Delineation Training – Wetland Training Institute, 1998

Basic Tracking and Wilderness Awareness Training – Earth Skills, 1998

Horizontal Directional Drilling Inspector Certification Seminar – North American Society for Trenchless Technology & California Department of Transportation, 2000 (certification received).